In the Claims:

1. (Currently Amended) A transfer method for transferring speech and voice band signals and ISDN (Integrated Services Digital Network) digital signals between an ATM (Asynchronous Transfer Mode) network and an STM (Synchronous Transfer Mode) network, the transfer method comprising the steps of:

(a) obtaining a silence information by detecting silence sections in input signals entered from the STM network;

(b) obtaining a signal type information for each input signal by judging whether each input signal is a speech and voice band signal or an ISDN digital signal, and further judging a signal type of each input signal that is judged as the speech and voice band signal;

(c) dynamically changing a compression scheme of each input signal into a most appropriate compression scheme selected from a plurality of different compression schemes with different compression rates, according to the silence information obtained at the step (a) and the signal type information obtained at the step (b), and compression each input signal using the most appropriate compression scheme;

(d) assembling variable length packets each having a length shorter than that of an ATM cell from signals compressed at the step (c) using the silence information obtained at the step (a) and the signal type information obtained at the step (b);

(e) assembling ATM cells by multiplexing a plurality of the variable length packets assembled at the step (d), and transferred the ATM cells to the ATM network;

(f) receiving input ATM cells from the ATM network and disassembling the input ATM cells into received packets;

(g) disassembling the received packets obtained at the step (f) into received signals;

(h) judging a signal compression scheme of each received signal obtained at the step (g);

(i) expanding each received signal using the signal compression scheme judged at the step (h); and

(j) reproducing silence sections in signals expanded at the step (i) so as to generate STM signals, and transferring the STM signals to the STM network.

2. (Original) The transfer method of claim 1, wherein the step (h) judges the signal compression scheme of each received signal obtained from each received packet according to a packet length of each received packet which is a variable length packet.

3. (Original) The transfer method of claim 1, wherein the step (e) assembles the ATM cells by multiplexing the variable length packets into an ATM connection in units of STM input channel group.

4. (Original) The transfer method of claim 1, wherein the step (e) assembles the ATM cells by multiplexing the variable length packets into an ATM connection in units of a signal type indicated by the signal type information obtained at the step (b).

5. (Original) The transfer method of claim 1, wherein the step (d) at an ATM cell transmitting side assembles the variable length packets only from non-silence sections by eliminating silence sections indicated by the silence information from signals compressed at the step (c), while using a sequence counter with a value ranging from 0 to 7 in headers of the variable length packets such that a value 0 is used for a first packet of each non-silence section, values 1 to 7 are used repeatedly for subsequent packets of each non-silence section, and a sequence counter is reset when a silence section occurs;

the step (f) at an ATM cell receiving side receives the input ATM cells containing the received packets that are assembled only from non-silence sections by eliminating silence sections, and the step (g) detects a sequence counter value in a header of each received packet such that a received packet with the sequence counter value 0 is detected as a first packet of each non-silence section and received packets with the sequence counter values 1 to 7 are detected as subsequent packets of each non-silence section, so as to detect the first packet of each non-silence section as well as an occurrence of a loss of packets and a number of lost packets for each non-silence section when there is a loss of any consecutive packets of each non-silence section between a transmitting side and a receiving side; and

when the received packet with the sequence counter value 0 is detected, the step (i) resets an algorithm of the signal compression scheme by taking the receiving packet with the sequence counter value 0 as the first packet of the non-silence section, so as to enable improvement of a quality of reproduced speech and voice band signals, and when a loss of packet is detected, the step (i) makes a judgement as to whether a lost packet is the first packet of the non-silence section or one

of the subsequent packets of the non-silence section, and applies a most appropriate loss compensation scheme according to a result of the judgement.

6. (Original) The transfer method of claim 1, wherein the step (e) changes a scheme for multiplexing a plurality of the variable length packets into an ATM connection among a plurality of schemes for multiplexing into an ATM connection including a multiplexing in units of STM input channel group and a multiplexing in units of signal compression scheme.

7. (Currently Amended) A transmitting side device for transferring speech and voice band signals and ISDN (Integrated Services Digital Network) digital signals from an STM (Synchronous Transfer Mode) network to an ATM (Asynchronous Transfer Mode) network, the device comprising:

a silence detection unit for obtaining a silence information by detecting silence sections in input signals entered from the STM network;

a signal type judgement unit for obtaining a signal type information for each input signal by judging whether each input signal is a speech and voice band signal or an ISDN digital signal, and further judging a signal type of each input signal that is judged as the speech and voice band signal;

a signal compression unit for dynamically changing a compression scheme of each input signal into a most appropriate compression scheme <u>selected from a plurality of different compression schemes with different compression rates,</u> according to the silence information obtained by the silence detection unit and the signal type information obtained by the signal type judgement unit, and compressing each input signal using the most appropriate compression scheme;

a packet assembling unit for assembling variable length packets each having a length shorter than that of an ATM cell from signals compressed by the signal compression unit using the silence information obtained by the silence detection unit and the signal type information obtained by the signal type judgement unit; and

an ATM cell assembling unit for assembling ATM cells by multiplexing a plurality of the variable length packets assembled by the packet assembling unit, and transferring the ATM cells to the ATM network.

8. (Original) The device of Claim 7, wherein the ATM cell assembling unit assembles the ATM cells by multiplexing the variable length packets in units of STM input channel group into an ATM connection.

9. (Original) The device of claim 7, wherein the ATM cell assembling unit assembles the ATM cells by multiplexing the variable length packets in units of a signal type indicated by the signal type information obtained by the signal type judgement unit into an ATM connection.

10. (Original) The device of claim 7, wherein the packet assembling unit assembles the variable length packets only from non-silence sections by eliminating silence sections indicated by the silence information from signals compressed by the signal compression unit, while using a sequence counter with a value ranging from 0 to 7 in headers of the variable length packet such that a value 0 is used for a first packet of each non-silence section, values 1 to 7 are used repeatedly for

subsequent packets of each non-silence section, and a sequence counter is reset when a silence section occurs.

11. (Original) The device of claim 7, wherein the ATM cell assembling unit changes a scheme for multiplexing a plurality of the variable length packets into an ATM connection among a plurality of schemes for multiplexing into an ATM connection including a multiplexing in units of STM input channel group and a multiplexing in units of a signal compression scheme.

12. (Currently Amended) A receiving side device for transferring speech and voice band signals and ISDN (Integrated Services Digital Network) digital signals from an ATM (Asynchronous Transfer Mode) network to an STM (Synchronous Transfer Mode) network, the device comprising:

an ATM cell disassembling unit for receiving input ATM cells from the ATM network and disassembling the input ATM cells into received packets;

a packet disassembling unit for disassembling the received packets obtained by the ATM cell disassembling unit into received signals;

a signal compression scheme judgement unit for judging a signal compression scheme of each received signal obtained by the packet disassembling unit, as one or a plurality of different compression schemes with different compression rates;

a signal expansion unit for expanding each received signal using the signal compression scheme judged by the signal compression scheme judgement unit; and

C3 cont. a silence reproduction unit for reproducing silence sections in signals expanded by the signal expansion unit so as to generate STM signals, and transferring the STM signals to the STM network.

13. (Original) The device of claim 12, wherein the signal compression scheme judgement unit judges the signal compression scheme of each received signal obtained from each received packet according to a packet length of each received packet which is a variable length packet.

14. (Currently Amended) The device of claim 12, wherein the ATM cell disassembling unit receives the input ATM cells containing the received packets that are assembled only from non-silence sections by eliminating silence sections, and the packet disassembling unit detects a sequence counter value in a header of each received packet such that a received packet with the sequence counter value 0 is detected as a first packet of each non-silence section and received packets with the sequence counter values 1 to 7 are detected as subsequent packets of non-silence section, so as to detect the first packet of each non-silence section as well as an occurrence of a loss of packets ~~and~~ and a number of lost packets for each non-silence section when there is a loss of any consecutive packets of each non-silence section between a transmitting side and a receiving side; and

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when the receiving packet with the sequence counter value 0 is detected, the signal expansion unit resets an algorithm of the signal compression scheme by taking the received packet with the sequence counter value 0 as the first packet of the non-silence section, so as to enable improvement of a quality of reproduced speech and voice band signals, and when a loss of packet is detected, the signal expansion unit makes a judgement as to whether a lost packet is the first packet of the non-

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silence section or one of the subsequent packets of the non-silence section, and applies a most appropriate loss compensation scheme according to a result of the judgement.